



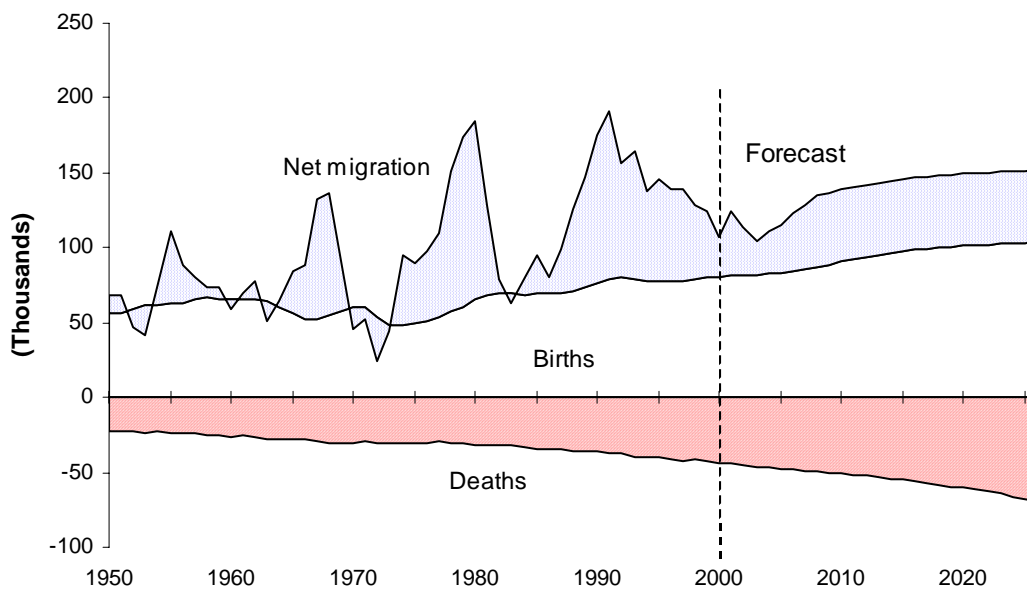
## CHAPTER 1

# Long-Term Forecasts of Washington Population and Net Migration

**T**HE POPULATION PROJECTION is an integrated part of the long-term forecast for Washington labor force, employment, and income. Population growth contributes to economic growth in the state by making available the labor needed for production, and by expanding the demand for goods and services.

Long-term population growth results from the combined effects of two sources of population change: natural increase and net migration. Natural increase is the excess of births over deaths, and net migration is the difference between in-migration and out-migration.

**Figure 1-1**  
**Components of Population Change: Washington**



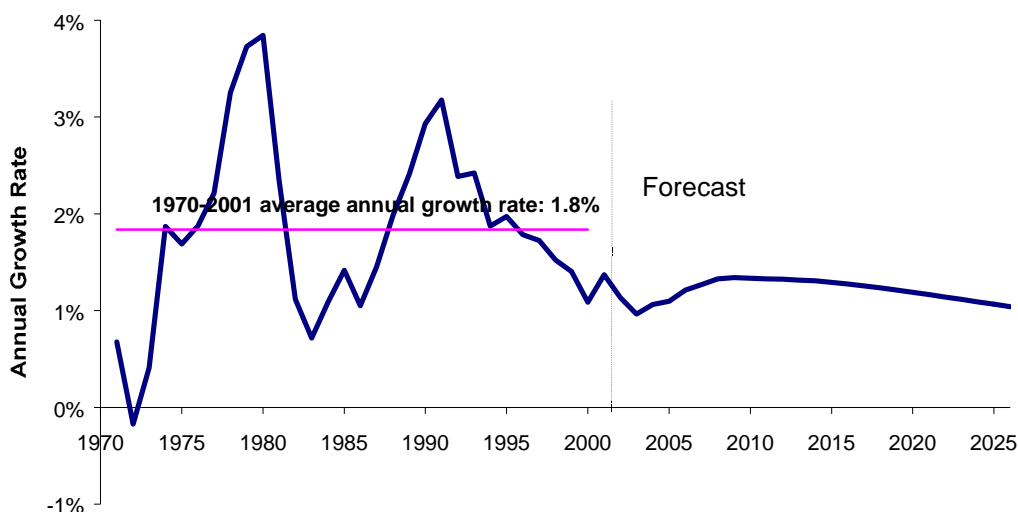
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Between 1970 and 2001, population in Washington grew 75 percent from 3.4 to 6.0 million, averaging 1.8 percent per year. However, the year-to-year changes fluctuated widely, ranging from a high of 3.8 percent in the 1979-80 period to the 1971-72 low of negative 0.2 percent. Net migration, which responds to changing economic conditions, accounted for most of the ups and downs in the yearly state population figures (Figure 1-1). Change in the number of births over time depends on the growth, age structure, and fertility rate of the population. The long-term trend of births in Washington reflects long, generational waves of socioeconomic change including the Great Depression, the post World War II baby boom, the baby bust of the 1970s, and the baby boom echo of the 1980s.

Washington population grew steadily in the second half of the 1980s and peaked in 1990. Between 1990 and 1993, the state population growth remained high at a 2.8 percent annual rate. In the rest of the decade, however, the state population growth slowed to 1.6 percent per year. By 2001, about 6.0 million people lived in Washington State. Over the next 25 years, the state population is expected to grow at an annual rate of 1.2 percent (Figure 1-2), reaching a total of 8.1 million by the year 2026. Net migration will continue to play a major role in the state population growth.

**Figure 1-2**  
**Population Growth: Washington, 1970-2026**



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## Net Migration

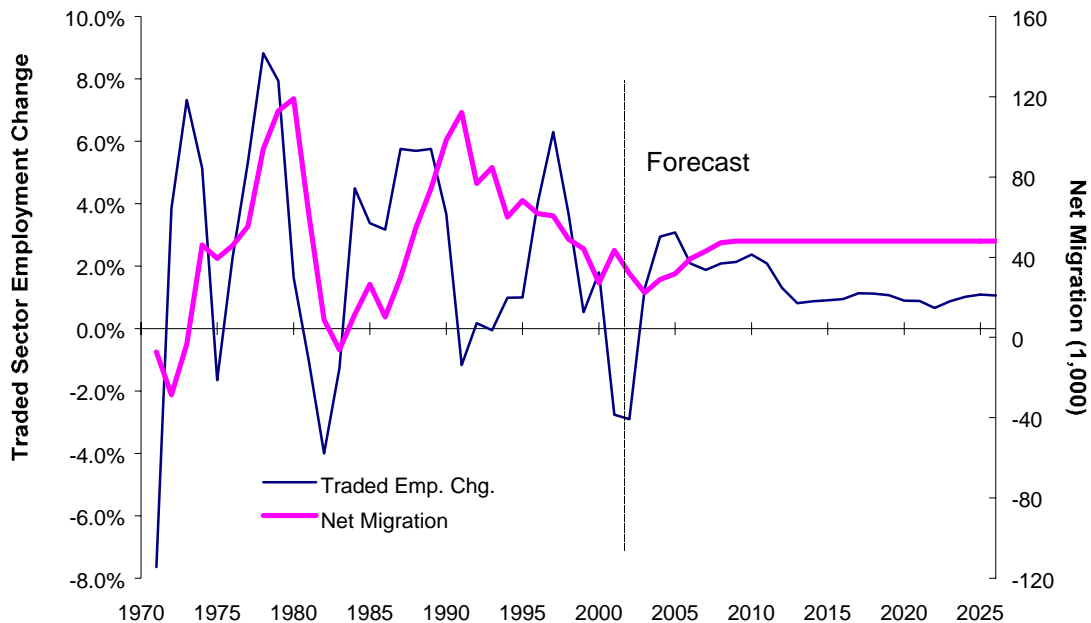
People move into or out of Washington for a variety of reasons. Non-economic factors such as movements of military personnel, retirement migration (principally persons over age 65), and pursuing social and natural amenities account for only a small portion of net migration. The majority of interstate population movements are due to relative changes in the labor market and economic conditions among the states. An expanding economy and labor market tends to “pull” people into an area. Conversely, a contracting economy and labor market tends to “push” people out of it. Net migration is the difference between out-migration and in-migration. These “push” and “pull” factors have made net migration the major contributor to population change in Washington.

The effects of the “push” and “pull” factors are evident in the historical net migration pattern for Washington State. For example, large population increases due to net migration occurred as a result of rapid economic expansions in Washington during the late 1970s and again in the late 1980s. When the state economy slumped in 1970-73 and 1981-83, net migration dropped sharply; in several of those years there was actually negative net migration.

In the first half of the 1990s, the slowing of economic growth in the state lowered the level of net migration and thus restrained population growth, but not to the same extent as in the past. One major reason is that employment growth in Washington still remained in positive territory during the 1990-91 U.S. recession. This made Washington relatively attractive to those seeking jobs, compared to other states that were losing employment. The relative strength of the Washington economy compared to the rest of the U.S. helped “pull” more job seekers into the state. In addition, California, which experienced a steep decline in employment starting about the same time as the U.S. recession, remained in recession well into 1993. Even though Washington experienced a significant reduction in aerospace jobs beginning in 1991, the overall Washington economy continued to perform much better than the California economy. Between 1990 and 1994, California experienced net out-migration of over 400,000 persons per year. Washington received a significant amount of these Californian out-migrants. These two factors, among others, contributed to fairly high levels of net migration for Washington during the early 1990s, even when the state’s economy slowed down significantly.

The picture, however, has reversed in the past five years. From 1995 to 2000, while state economic growth picked up pace, so did the U.S. and the Californian economies. As a result, the level of net migration dropped steadily (Figure 1-3).

**Figure 1-3**  
**Net Migration and Traded Sectors Employment Change**



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Change in “traded sector” employment has been the major determinant of the Washington net migration. The traded sectors of the state economy include manufacturing, civilian federal government, and producer services (services purchased by other businesses and government agencies). These industries are considered “traded” because they bring revenue and income into

the state. For example, most of the aluminum produced in Washington is fabricated into consumer products by out-of-the-state businesses.

The traded industries usually demand special worker skills that cannot be sufficiently supplied from the local labor pool. Companies in the traded sectors thus constantly recruit workers, especially professionals, from the national labor market. During expansionary periods, new positions created in the state's traded industries very likely require specialized skills or experience that are in short supply among existing Washington worker pool. For example, to increase development and production to the desired levels, the Boeing Company may require as many as 3,000 additional aerospace engineers in a single year. If this amount of extra engineers is not readily available in the state, they will have to come from elsewhere in the country or even from overseas.

Traded sector jobs also tend to be high wage jobs, which is another incentive to attract workers from outside the state. High wages not only induce people to change jobs, they also help cover the costs of interstate relocation. Cost is a critical concern especially if in-migrating workers need to bring family members with them. In short, when Washington's traded sectors expand, net migration increases, and when these sectors decline net migration falls.

Net migration has a significant impact on the size of the state labor force. Since a majority of in-migration to Washington is associated with employment opportunities, these economic migrants tend to be active labor market participants for a long span of time, therefore contributing to the growth of the Washington labor force. Also, gross (i.e., in- plus out-) flow of migration is generally 5 to 10 times the magnitude of net migration; this is the reason why many public and private business operations (e.g., issuance of driver's license, rental housing, etc.) are strongly affected by the level of net migration.

## Forecast of Net Migration

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The methodology used to forecast net migration includes two steps. First, the Office of Financial Management (OFM) and the Employment Security Department (ESD) jointly develop a forecast of employment for the traded sectors. This initial forecast is based on a system of equations determining employment in each of the 17 manufacturing sectors, the federal civilian sector, and the producer services sector. The producer services sector consists of business services, legal services, engineering, accounting, research, management, and related services.

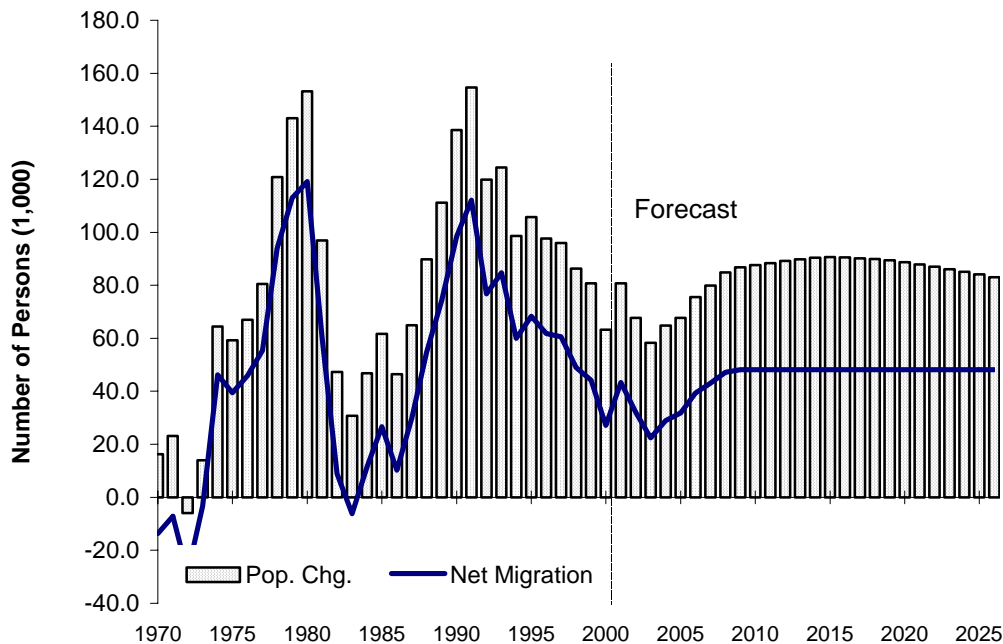
Next, a single equation model is used which treats Washington net migration as a function of traded sector job growth within the state relative to economic conditions in the rest of the country and California. The specific factors included in the model to determine levels of Washington net migration are:

- **The percentage change in Washington's traded sector employment relative to the percentage change in traded sector employment in the U.S.** (The U.S. forecast is from Data Resources Incorporated [DRI] Summer 2001 long-term trend forecast.)

- **The percentage change in Washington's traded sector employment relative to the percentage change in traded sector employment in California.** (The California forecast was obtained from the DRI's Regional Services.)
- **The national unemployment rate.**

Net migration for Washington over the next 25 years is predicted to maintain an average of about 44,400 persons per year, about the same as the historical average of 44,700 per year between 1970 and 2001. The level of net migration, however, varies over the forecast period. Net migration is predicted to remain low during 2001-05, and then gradually increase to settle on a stable, long-term level of around 48,100 per year through 2020. (Population statistics, including net migration, are shown in Table 1-1 at the end of this chapter.)

**Figure 1-4**  
**Net Migration and Population Change**



The main reason that Washington's net migration is expected to sustain at the historical average is that Washington's traded sectors are expected to maintain healthier growth than their national counterparts over the forecast period. For example, the forecast calls for manufacturing employment to grow modestly in Washington over the next 25 years, whereas manufacturing employment in the U.S. is projected to gradually decline.

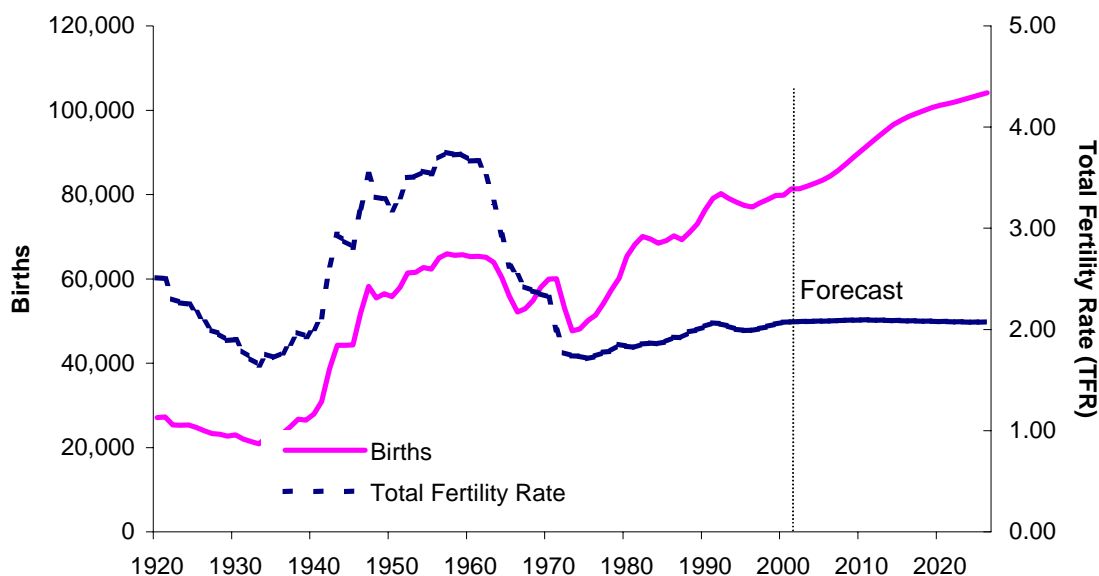
The net migration forecast, once completed, is incorporated in the demographic model for the long-term projection of state total population.

## Natural Increase

Natural increase is the second component of population growth. Natural changes include additions to the population through births, and reductions from the population due to deaths. The state's natural population increase is forecast to average 38,900 a year between 2001 and 2026.

The total fertility rate in Washington, which represents the estimated average number of births to women in their childbearing years, is expected to reach and remain at a replacement level of 2.1 births per woman through the end of the forecast period (Figure 1-5). This is somewhat above the all-time low of 1.6 births per woman in 1933, but far below the peak of 3.7 births per woman in 1957. The fertility rate is not expected to rise significantly, in part because of the increasing labor force participation rate for women of childbearing age. (See next chapter.) Also, compared to earlier generations, women are marrying later, having births later, are more likely to live independently, and are spending more time on education. These factors, in combination with technological advancements in birth control, tend to lower the fertility rate.

**Figure 1-5**  
**Births and the Total Fertility Rate: Washington**



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While the fertility rate is expected to remain fairly stable throughout the forecast period, the number of women of childbearing age is predicted to grow steadily. As a result, the annual number of births in Washington is expected to increase from 81,400 in 2000-01 to about 104,100 in 2025-26.

By definition, the labor force includes only those age 16 and older. Births have a delayed effect on labor force growth, as individuals born today will be potential members of the labor force in

16 years. This implies that recent population changes due to births will affect the labor force in the latter years of the forecast period. For example, anyone born in 1995 will be old enough to enter the labor force in 2011. Similarly, births over the past 16 years are closely associated with the labor force growth in the 2001-2017 period. Although the annual number of births in Washington during the early 1970s dropped to less than 50,000, the number of births rebounded to 70,100 in 1982. By 1990 the annual number of births in the state had increased to 76,400. As explained above, the increased births in the 1980s and 1990s will contribute to the growth of the state workforce over the next two decades.

Mortality, the other component of natural increase, will also rise throughout the forecast period. Life expectancy increased rapidly between 1920 and 1960 and continued to improve through the 1980s, albeit at a much slower pace. Since a lot of the improvements have been achieved in the prevention of infant deaths, future substantial improvement in life expectancy at birth is unlikely.

The forecast calls for both male and female life expectancy in Washington to continue to improve at a slow but steady rate. As in the nation as a whole, the state's population will be aging. Higher mortality rates associated with an aging population will more than offset the improving life expectancy, leading to rising aggregate death rates. The proportion of all deaths due to deaths of the elderly will increase during the forecast period. This suggests that mortality will not have a major impact on labor force growth in the forecast period, because most of the deaths will occur at ages when individuals are unlikely to be in the labor force.

Over the next few decades, aging of the population, both in the state and throughout the nation, will be a profound demographic phenomenon. In Washington State, people 65 years of age and older will account for a growing share of population, from 11.2 percent in 2001 to 18.5 percent in 2026 (Figure 1-6). The trend will have widespread economic and public policy implications ranging from the expanding demand for personal and health services at the local level to increasing pressure on the federal Social Security and medical insurance programs.

Table 1-1 on page 11 shows the historical and projected Washington population trend, and the components of population change.

**Figure 1-6**  
**Aging of Population: Washington**

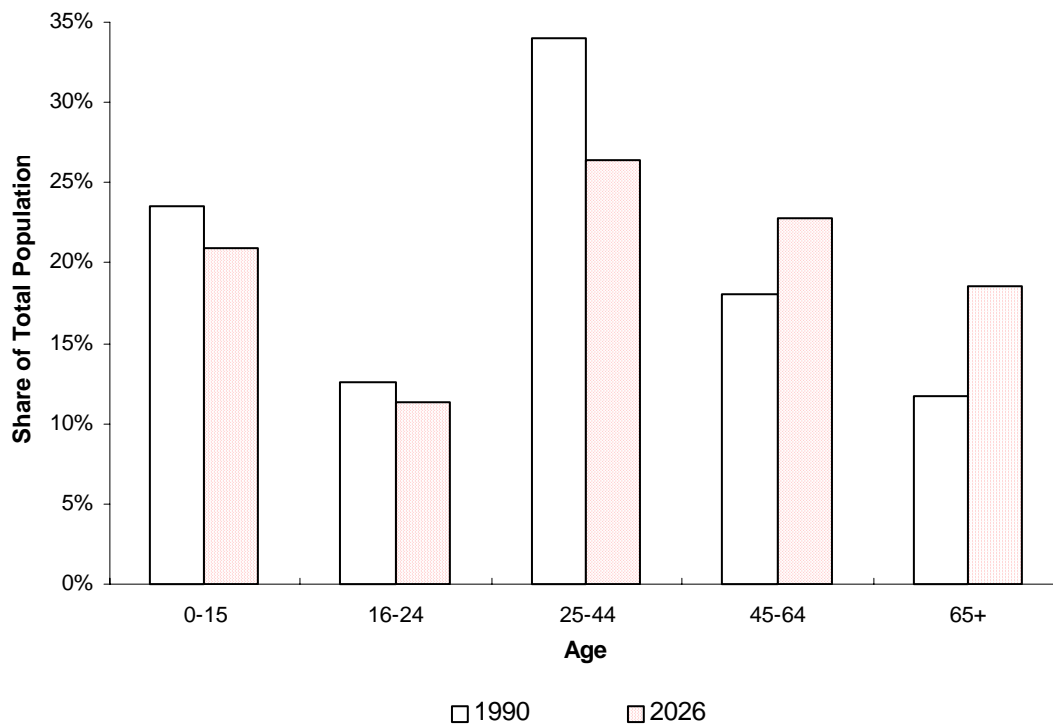


Table 1-1

**Components of Population Change: 1990 – 2026**

| Period           | Population<br>End of Period | Population Change |      | Births           |        | Deaths           |        | Natural<br>Increase | Net Migration    |        |
|------------------|-----------------------------|-------------------|------|------------------|--------|------------------|--------|---------------------|------------------|--------|
|                  |                             | Number            | %    | Number           | Rate * | Number           | Rate * |                     | Number           | Rate * |
| 1989-1990        | 4,866,700                   | 138,600           | 2.93 | 76,400           | 15.93  | 36,200           | 7.55   | 40,100              | 98,500           | 20.53  |
| 1990-1991        | 5,021,300                   | 154,600           | 3.18 | 79,100           | 15.99  | 36,600           | 7.40   | 42,500              | 112,100          | 22.68  |
| 1991-1992        | 5,141,200                   | 119,800           | 2.39 | 80,200           | 15.79  | 37,200           | 7.31   | 43,000              | 76,800           | 15.11  |
| 1992-1993        | 5,265,700                   | 124,500           | 2.42 | 79,100           | 15.20  | 39,400           | 7.56   | 39,700              | 84,800           | 16.29  |
| 1993-1994        | 5,364,300                   | 98,700            | 1.87 | 78,200           | 14.71  | 39,500           | 7.44   | 38,700              | 60,000           | 11.29  |
| 1994-1995        | 5,470,100                   | 105,800           | 1.97 | 77,500           | 14.30  | 40,000           | 7.38   | 37,500              | 68,300           | 12.60  |
| 1995-1996        | 5,567,800                   | 97,700            | 1.79 | 77,000           | 13.95  | 41,200           | 7.46   | 35,800              | 61,800           | 11.20  |
| 1996-1997        | 5,663,800                   | 96,000            | 1.72 | 78,000           | 13.90  | 42,600           | 7.59   | 35,400              | 60,600           | 10.79  |
| 1997-1998        | 5,750,000                   | 86,300            | 1.52 | 78,800           | 13.81  | 41,600           | 7.28   | 37,200              | 49,000           | 8.59   |
| 1998-2000        | 5,830,800                   | 80,800            | 1.41 | 79,800           | 13.77  | 43,100           | 7.45   | 36,700              | 44,200           | 7.63   |
| 2000-2000        | 5,894,100                   | 63,300            | 1.09 | 79,900           | 13.62  | 43,700           | 7.46   | 36,200              | 27,200           | 4.64   |
| 2000-2001        | 5,974,900                   | 80,800            | 1.37 | 81,400           | 13.71  | 44,000           | 7.41   | 37,400              | 43,400           | 7.31   |
| 2001-2002        | 6,042,600                   | 67,700            | 1.13 | 81,300           | 13.54  | 45,600           | 7.59   | 35,700              | 32,000           | 5.33   |
| 2002-2003        | 6,100,900                   | 58,200            | 0.96 | 82,000           | 13.50  | 46,100           | 7.60   | 35,900              | 22,400           | 3.69   |
| 2003-2004        | 6,165,700                   | 64,800            | 1.06 | 82,700           | 13.48  | 46,800           | 7.64   | 35,900              | 29,000           | 4.73   |
| 2004-2005        | 6,233,300                   | 67,700            | 1.10 | 83,400           | 13.46  | 47,600           | 7.68   | 35,800              | 31,800           | 5.13   |
| 2005-2006        | 6,308,800                   | 75,500            | 1.21 | 84,400           | 13.46  | 48,200           | 7.69   | 36,200              | 39,300           | 6.27   |
| 2006-2007        | 6,388,800                   | 80,000            | 1.27 | 85,800           | 13.51  | 48,900           | 7.70   | 36,900              | 43,100           | 6.79   |
| 2007-2008        | 6,473,700                   | 84,900            | 1.33 | 87,300           | 13.57  | 49,600           | 7.71   | 37,700              | 47,200           | 7.34   |
| 2008-2009        | 6,560,500                   | 86,800            | 1.34 | 88,900           | 13.65  | 50,300           | 7.71   | 38,600              | 48,100           | 7.38   |
| 2009-2010        | 6,648,100                   | 87,600            | 1.34 | 90,500           | 13.70  | 51,000           | 7.72   | 39,500              | 48,100           | 7.28   |
| 2010-2011        | 6,736,500                   | 88,400            | 1.33 | 92,000           | 13.75  | 51,800           | 7.73   | 40,200              | 48,100           | 7.19   |
| 2011-2012        | 6,825,600                   | 89,200            | 1.32 | 93,600           | 13.80  | 52,500           | 7.75   | 41,100              | 48,100           | 7.09   |
| 2012-2013        | 6,915,500                   | 89,800            | 1.32 | 95,100           | 13.84  | 53,400           | 7.77   | 41,700              | 48,100           | 7.00   |
| 2013-2014        | 7,005,900                   | 90,400            | 1.31 | 96,600           | 13.87  | 54,200           | 7.79   | 42,400              | 48,100           | 6.91   |
| 2014-2015        | 7,096,500                   | 90,600            | 1.29 | 97,600           | 13.85  | 55,100           | 7.82   | 42,500              | 48,100           | 6.82   |
| 2015-2016        | 7,187,000                   | 90,500            | 1.28 | 98,500           | 13.80  | 56,100           | 7.86   | 42,400              | 48,100           | 6.74   |
| 2016-2017        | 7,277,200                   | 90,200            | 1.26 | 99,300           | 13.73  | 57,100           | 7.90   | 42,200              | 48,100           | 6.65   |
| 2017-2018        | 7,367,100                   | 89,900            | 1.23 | 100,000          | 13.65  | 58,200           | 7.95   | 41,800              | 48,100           | 6.57   |
| 2018-2019        | 7,456,500                   | 89,400            | 1.21 | 100,600          | 13.58  | 59,300           | 8.00   | 41,300              | 48,100           | 6.49   |
| 2019-2020        | 7,545,300                   | 88,800            | 1.19 | 101,200          | 13.49  | 60,500           | 8.07   | 40,700              | 48,100           | 6.41   |
| 2020-2021        | 7,633,100                   | 87,900            | 1.16 | 101,600          | 13.38  | 61,800           | 8.15   | 39,800              | 48,100           | 6.34   |
| 2021-2022        | 7,720,100                   | 87,000            | 1.14 | 102,000          | 13.29  | 63,100           | 8.23   | 38,900              | 48,100           | 6.27   |
| 2022-2023        | 7,806,200                   | 86,100            | 1.11 | 102,500          | 13.21  | 64,600           | 8.32   | 37,900              | 48,100           | 6.20   |
| 2023-2024        | 7,891,300                   | 85,100            | 1.09 | 103,100          | 13.13  | 66,000           | 8.41   | 37,100              | 48,100           | 6.13   |
| 2024-2025        | 7,975,500                   | 84,100            | 1.07 | 103,600          | 13.06  | 67,600           | 8.52   | 36,000              | 48,100           | 6.06   |
| 2025-2026        | 8,058,500                   | 83,100            | 1.04 | 104,100          | 12.99  | 69,200           | 8.63   | 34,900              | 48,100           | 6.00   |
| 1980-1990        |                             | 734,300           |      | 705,300          |        | 339,800          |        | 365,000             | 369,200          |        |
| 1990-2000        |                             | 1,027,500         |      | 787,600          |        | 404,900          |        | 382,700             | 644,800          |        |
| 2000-2010        |                             | 754,000           |      | 847,700          |        | 478,100          |        | 369,600             | 384,400          |        |
| 2010-2020        |                             | 897,200           |      | 974,500          |        | 558,200          |        | 416,300             | 481,000          |        |
| 2020-2026        |                             | 513,300           |      | 616,900          |        | 392,300          |        | 224,600             | 288,600          |        |
| <b>2000-2026</b> |                             | <b>2,164,500</b>  |      | <b>2,439,100</b> |        | <b>1,428,600</b> |        | <b>1,010,500</b>    | <b>1,154,000</b> |        |

\*Rates are calculated per 1,000-midpoint population.

SOURCES: Forecasts of the State Population: November 2001 Forecast, Washington State Office of Financial Management.